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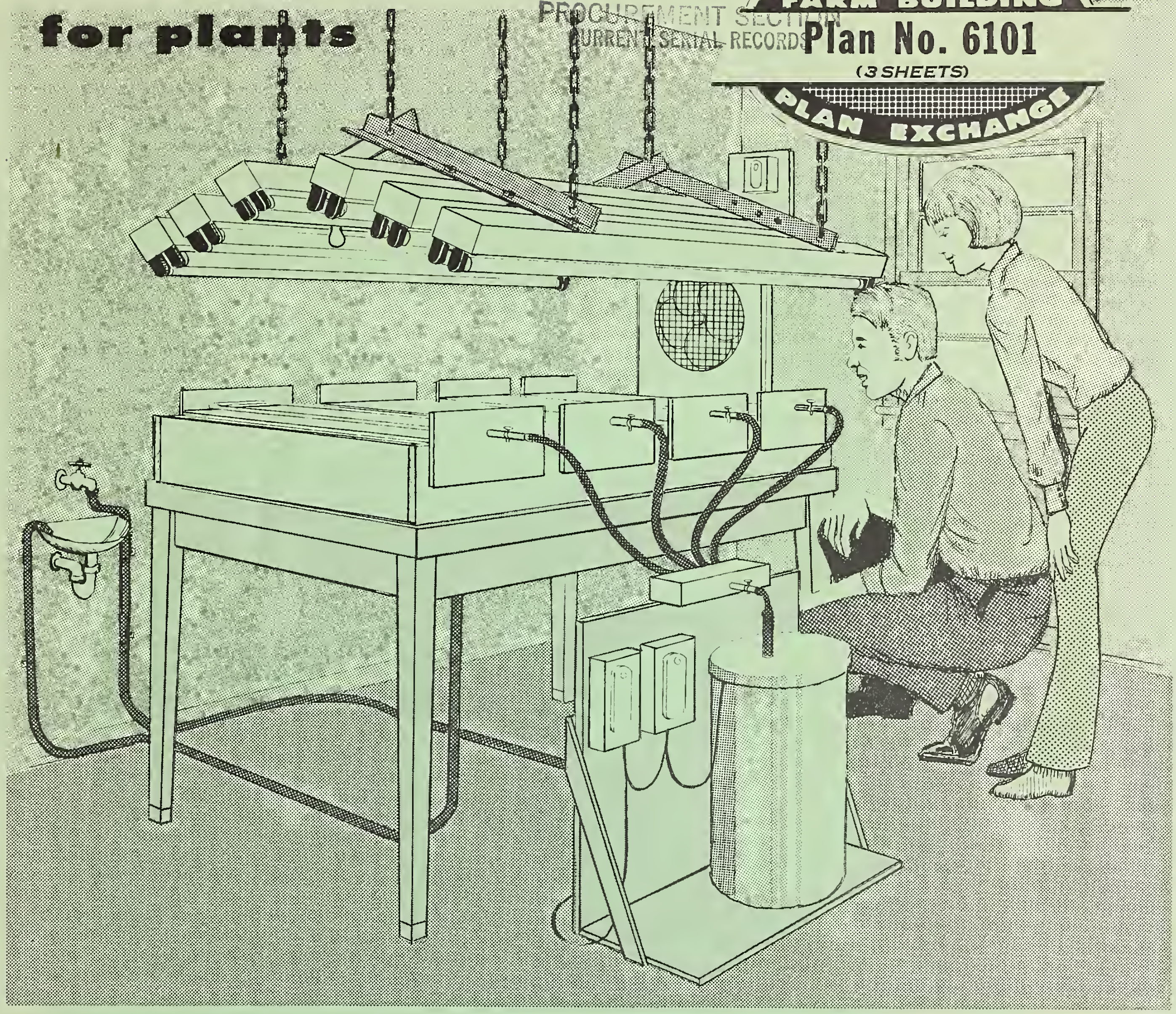
# PROPAGATION UNIT.... for plants

COOPERATIVE FARM BUILDING
Plan No. 6101
(3 SHEETS)
PLAN EXCHANGE



Plants that are germinated and grown to transplanting stage under artificial light get a headstart on plants that are started in the greenhouse or planted directly in the garden. This propagation unit is designed to use 1,500-milliampere fluorescent lamps. Some plants will do better with incandescent light added at a ratio of 1 watt incandescent light to 5 watts of fluorescent light.

The lamp bank in this unit consists of six two-lamp strip fixtures mounted to an angle iron framework. The lamp bank is suspended in an inverted V shape to distribute light uniformly over the 3- by 4-foot growing area. This area can be increased if 6- or 8-foot lamps are used. Two or more units can be mounted end-to-end to provide any desired growing area. The lamps can be left on continuously or controlled by a 24-hour timeclock to give any desired photoperiod.

For most plants, a 16-hour photoperiod should be adequate for satisfactory growth. Some plants will grow under continuous illumination, but others, such as tomato, require an alternating light and dark period.

The air temperature at the plant level will depend on the distance from the lamps. Normally, it will run at least 5° to 10° F. higher than room temperature during the day and will approximate room temperature during

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the night. If the temperature is too cold or too hot, the plants will be small and of poor quality. The temperature can be controlled with heaters and air conditioners in the surrounding room if it is too low or high. The temperature of the fluorescent lamps should be around 100° F. on the glass surface near the center of the lamp. The light output goes down if the lamp is too hot or cold. The fan in this unit will keep the lamps and the plants at the correct temperature in a 70° F. room.

The automatic watering system can be set to water the plants for one or more minutes for as many times as desired during the day. Some growers may want to substitute watering tubes for the needle-tube system shown in the working drawings. Watering assemblies can be purchased in units with 20 or more small tubes. Some tubes have sliding shutoff valves at the end of each tube. Other growers may want to use spray nozzles, but care should be taken to keep the lamp unit dry.

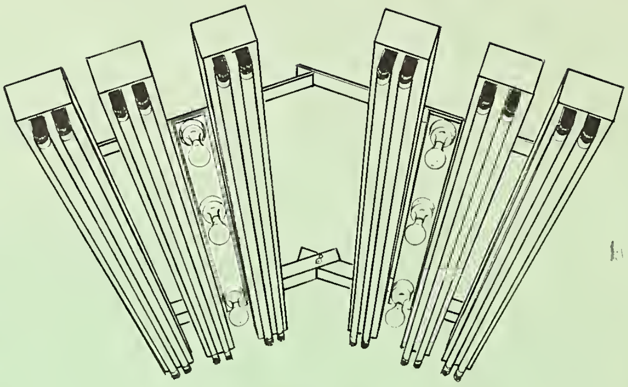
Avoid placing this unit in a poorly ventilated or closed room because the plants will consume most of the available carbon dioxide. If the unit is in a closed room, use a small blower to bring fresh air into the growing area.

Under the propagation unit, seeds germinate and grow uniformly at an accelerated rate. Because the heat from the lamps dries the soil surface, the seed and young plants should be watered frequently.

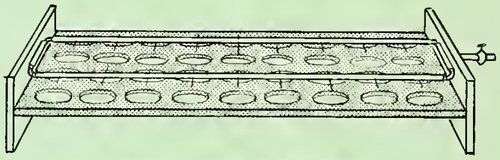
The starting media should be sterile and should drain easily so that excess water will not stand on the soil surface. Use self-contained starting units, such as peat pellets or compressed paper blocks, for starting seedlings. You may also sow seed in a synthetic soil mix consisting of equal parts peat moss and vermiculite. These starting aids are available from most garden supply centers.

Begin fertilizing the plants with a water soluble fertilizer when they show their first true leaves. Start with 1 teaspoon of fertilizer per gallon of water, and double the amount of fertilizer as the plants become larger.

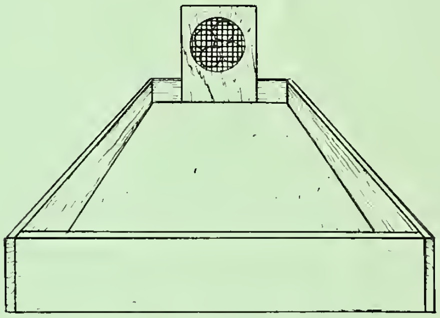
Many types of seedlings and cuttings have been grown successfully in this unit. At any time of the year you may grow herbs, radishes, lettuce, cherry tomatoes, and dwarf bedding plants.



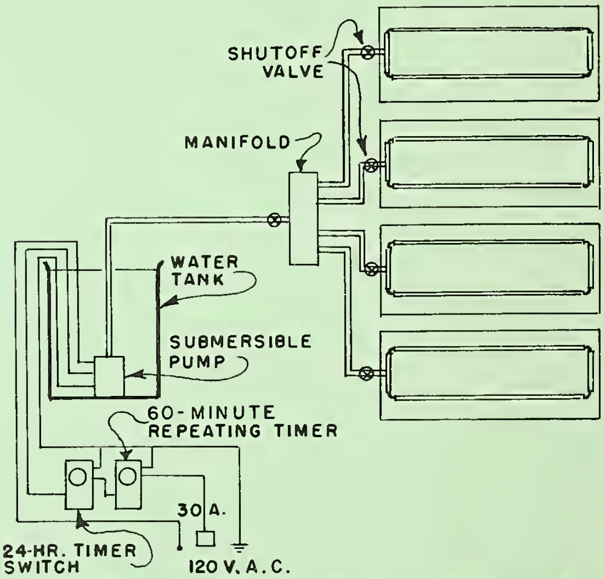
LAMP UNIT



POT HOLDER TRAY



TRAY WITH FAN



WATERING SYSTEM WITH TIMECLOCKS

*Complete working drawings may be obtained from the extension agricultural engineer at your State university. There may be a small charge to cover cost of printing.*

*If you do not know the location of your State university, send your request to Agricultural Engineer, Extension Service, U.S. Department of Agriculture, Washington, D.C. 20250. He will forward your request to the correct university.*

ORDER PLAN NO. 6101, PROPAGATION UNIT . . . FOR PLANTS.

Agricultural Engineering Research Division AGRICULTURAL RESEARCH SERVICE

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